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(54) Title: MODULATION OF STEM CELL DIFFERENTIATION BY MODULATION OF CASPASE-3 ACTIVITY

(57) **Abstract:** Methods of directing stem cell fate for therapeutic purposes through the deliberate manipulation of caspase-3 activity are provided. The use of modulators of caspase-3 activity to modulate stem cell differentiation is described including activators and/or effectors of caspase-3, which can be used to induce stem cell differentiation, and inhibitors of caspase-3, which can be used to inhibit differentiation and thereby promote or maintain proliferation of stem cells. Methods of screening for modulators of caspase-3 and the use of such compounds to modulate stem cell differentiation *in vitro* or *in vivo* are also provided as are therapeutic applications of the compounds.